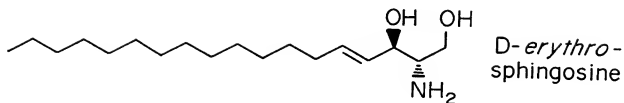
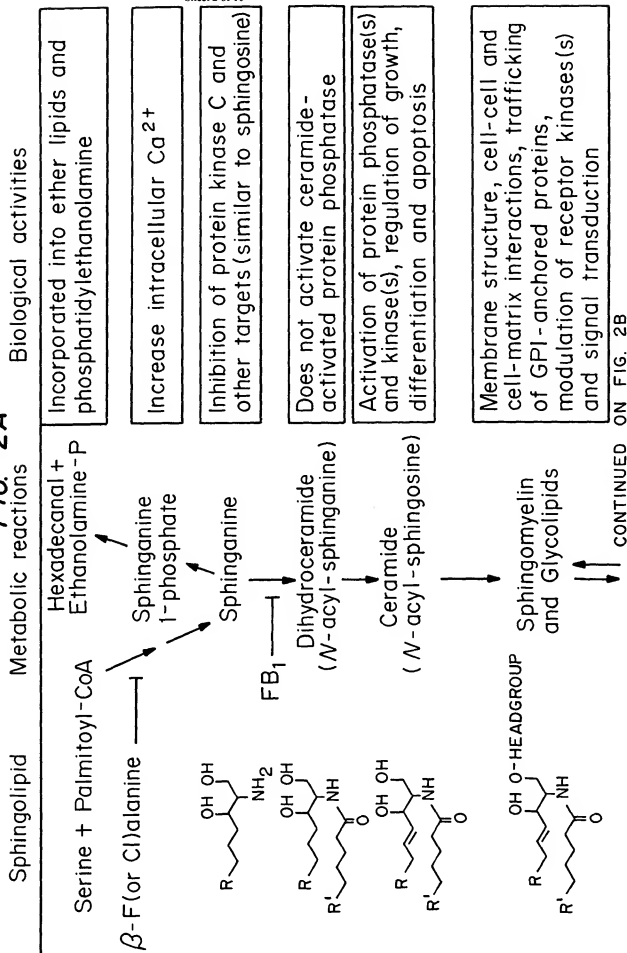


Inventor: Liotta *et al.*  
Title: Sphingolipid Derivatives and Their Methods  
of Use  
Serial No. Unassigned  
Attorney: Sherry M. Knowles, Esq.  
Attorney Docket No. 18085.105233CON1 (EMU  
2010)  
Sheet 1 of 16



**FIG. 1**

FIG. 2A

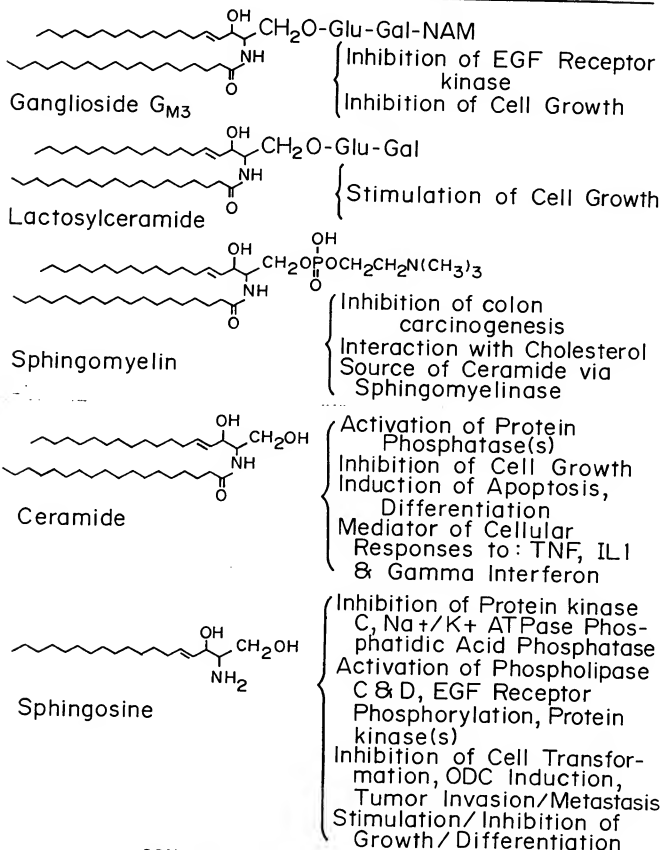




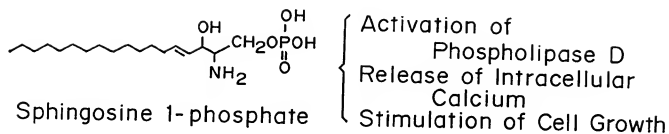
# FIG. 3A

## Sphingolipid

## Examples of Biological Activities

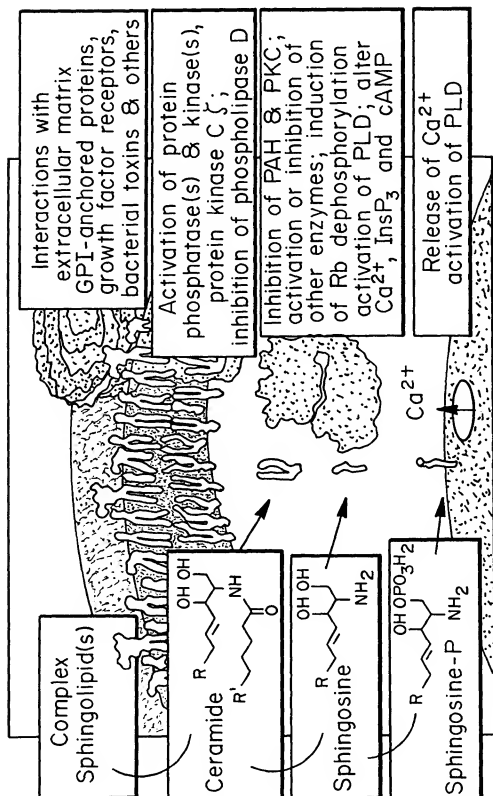


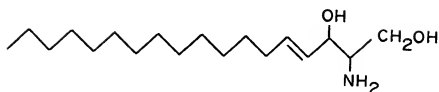
CONTINUED ON FIG. 3B



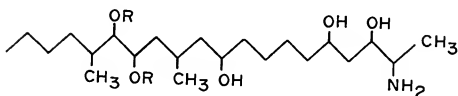
**FIG. 3B**

FIG. 4

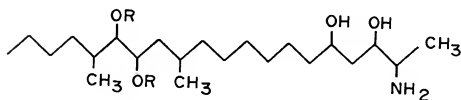




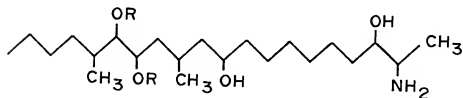
Sphingosine



Fumonisin B<sub>1</sub>

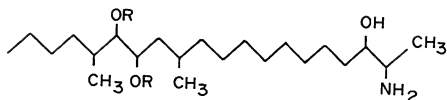


Fumonisin B<sub>2</sub>

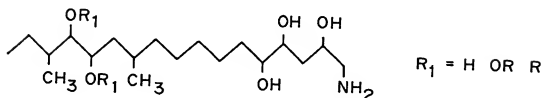


Fumonisin B<sub>3</sub>

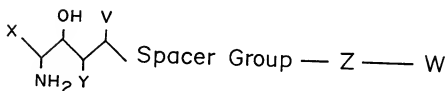
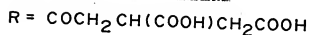
**FIG. 5A**



Fumonisin B<sub>4</sub>



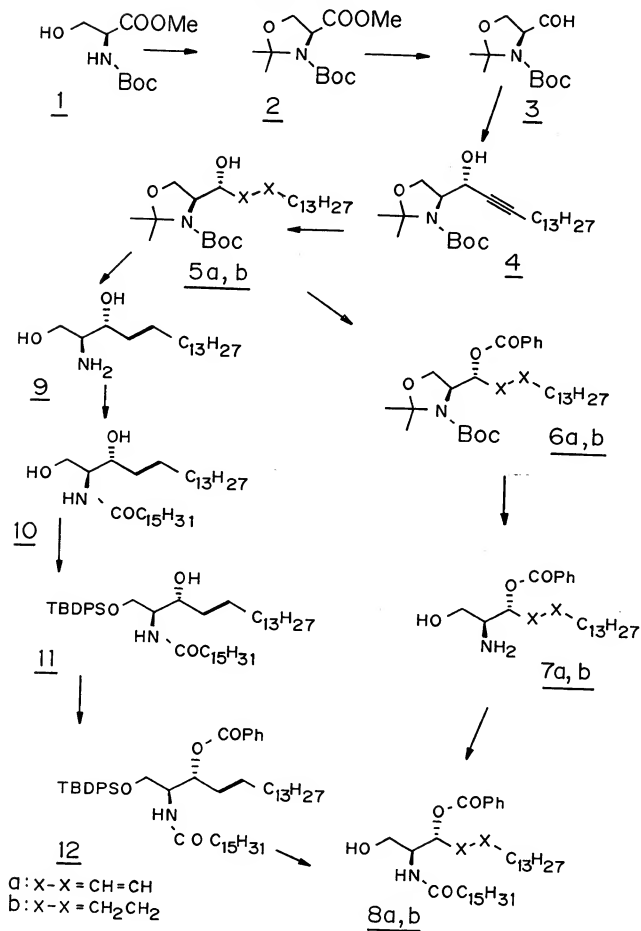
Alternaria toxins (AAL toxins)

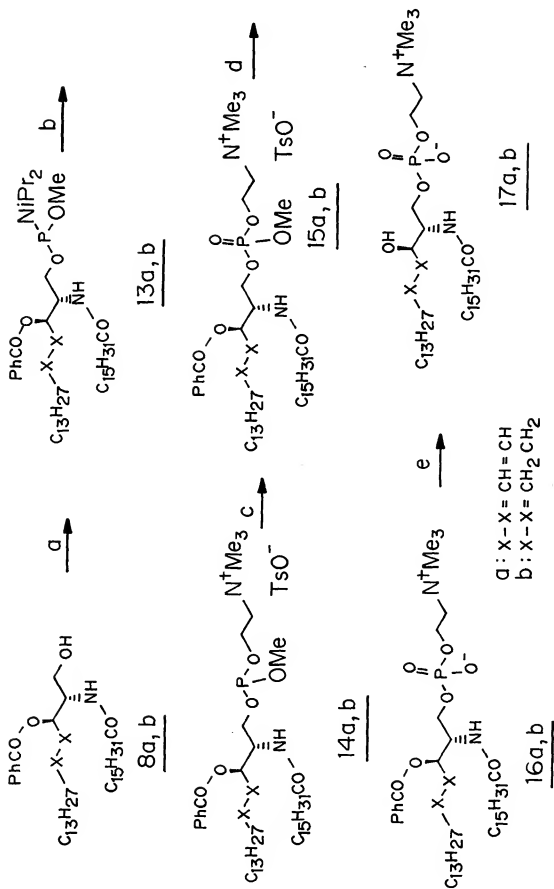


Fumonisin Analogs

**FIG. 5B**

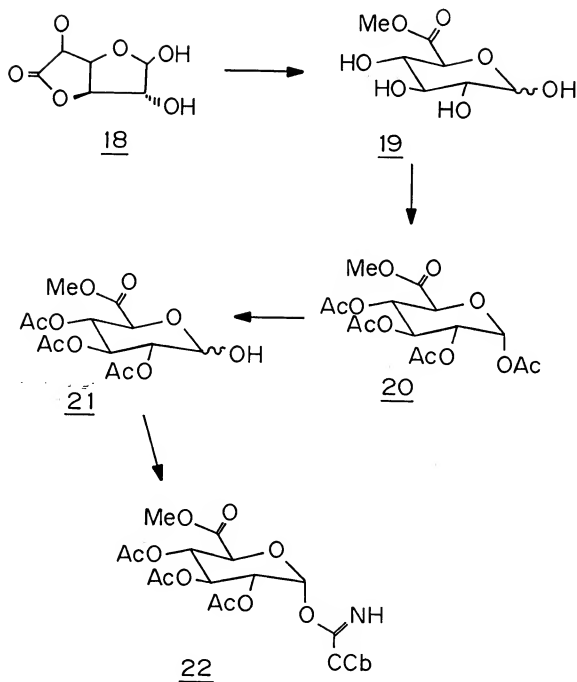
**FIG. 6**



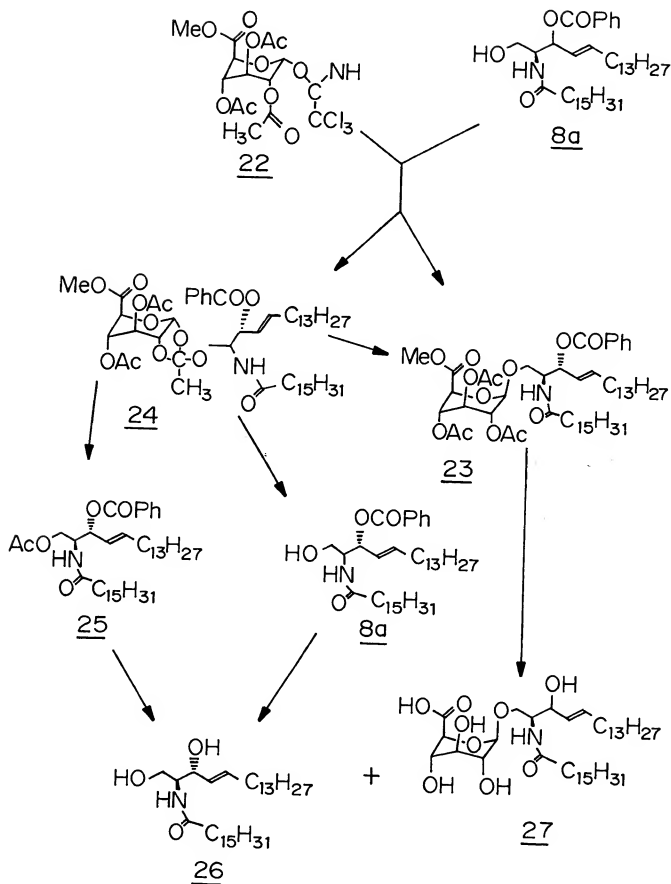


Reagents and conditions : (a)  $\text{iPr}_2\text{NP(OMe)Cl/Et}_3\text{N/CH}_2\text{Cl}_2$ ; (b) Choline tosylate/  
 Tetrazole/MeCN/THF; (c)  $\text{t-BuOOH/MeCN}$ ; (d)  $\text{t-BuNH}_2/\text{CH}_2\text{Cl}_2$ ; (e)  $\text{MeONa/MeOH}$

FIG. 7



**FIG. 8**



**FIG. 9**

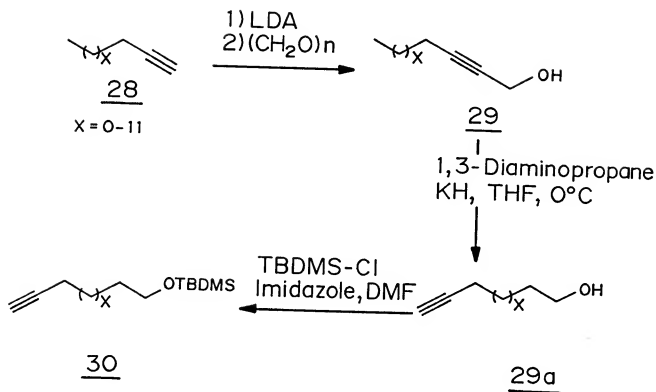
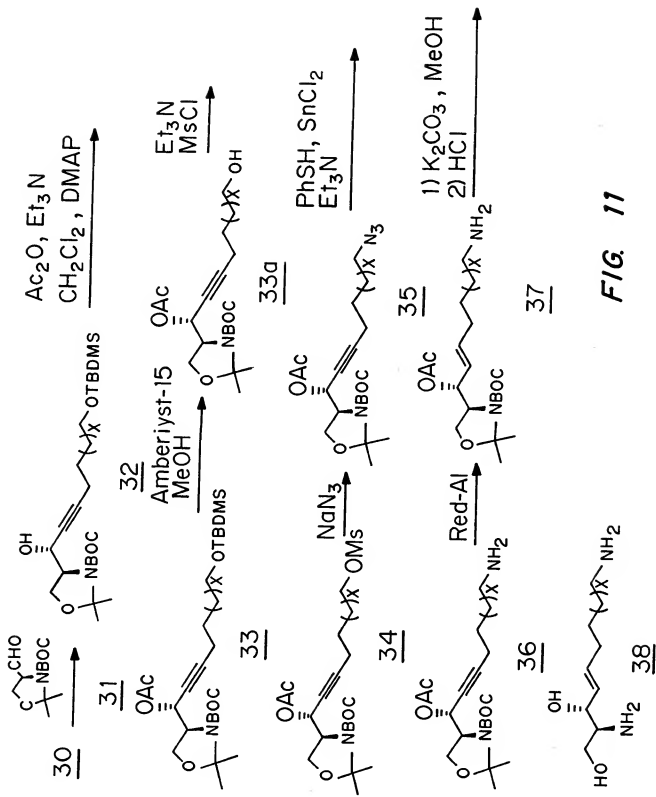
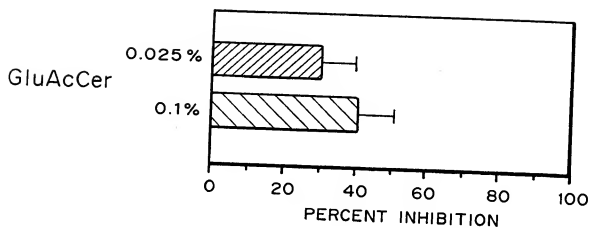
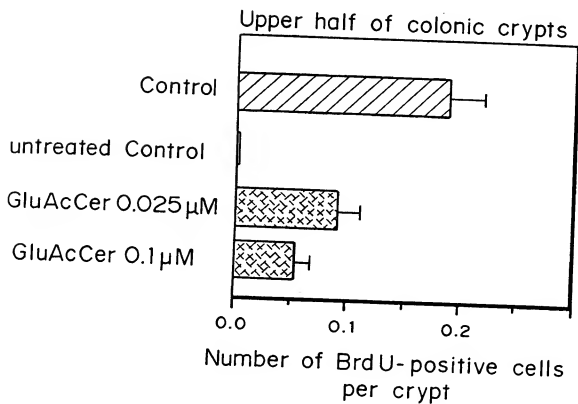


FIG. 10

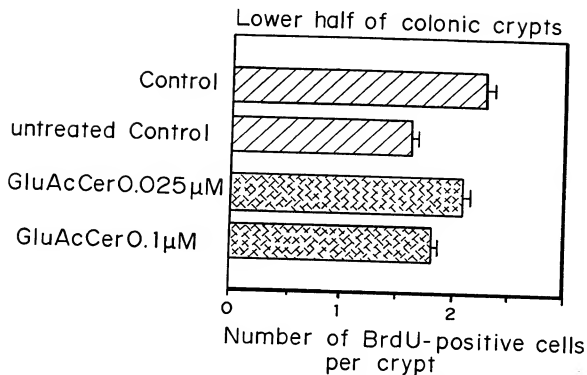




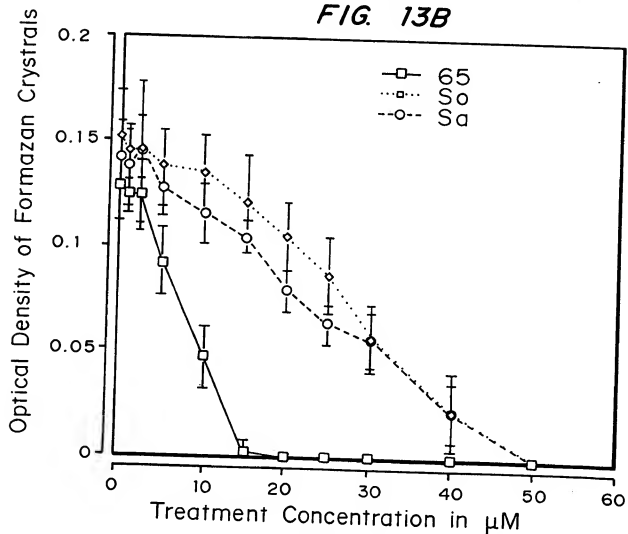
**FIG. 12**



**FIG. 13A**



**FIG. 13B**



**FIG. 14**